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Effect of Cigarette Smoke on Pulmonary Fibroblasts and Collagen and Its Relation to Emphysema.

The objectives of this project are to:

1. Study the effects of aldehydes on cell division, life span and synthetic activity.
2. Identify the cell fraction to which aldehydes bind.
3. Study the interaction of smoke components with lung matrix molecules and study the immunogenicity of these complexes.
4. Study the thrombogenicity of aldehyde-treated collagen.
5. Study the effects of aldehyde-exposed pulmonary macrophages on platelets.

All the stated experiments will be conducted with C^{14} -labeled formaldehyde. This will enable the investigators to quantitatively measure the phenomena they intend to observe. Lung fibroblasts (WI 38) and pulmonary macrophages in tissue culture will be exposed to aldehydes. Their effects on the macrophages themselves and on platelets will be measured by monitoring the release of proteolytic enzymes as well as the release of vasoactive amines by the platelets.

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